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ARMY OPERATION DOCTRINE

ARMY AVIATION SYSTEMS COMMAND
ST. LOUIS, MISSOURI

12 NOVEMBER 1976

USAAVSCOM TR 77-2

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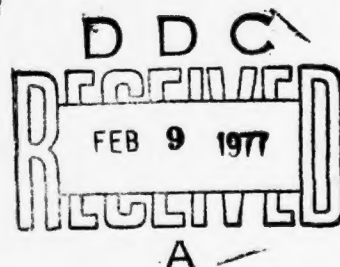
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LTC Richard A. Radtke

12 Nov. 1976

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Prepared for
U.S. ARMY AVIATION SYSTEMS COMMAND
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REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER USAAVSCOM TR 77-2	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Remotely Piloted Vehicle (RPV) Mission Capability Concepts as Related to US Army Operations Doctrine		5. TYPE OF REPORT & PERIOD COVERED Final
7. AUTHOR(s) LTC Richard A. Radtke		6. PERFORMING ORG. REPORT NUMBER DRSAV-D-76-13
9. PERFORMING ORGANIZATION NAME AND ADDRESS U.S. Army Aviation Systems Command Systems Analysis Office, P.O. Box 209 St. Louis, MO 63130		8. CONTRACT OR GRANT NUMBER(s)
11. CONTROLLING OFFICE NAME AND ADDRESS SAME AS ABOVE		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		12. REPORT DATE 12 Nov 1976
		13. NUMBER OF PAGES
		15. SECURITY CLASS. (of this report)
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited		
17. DISTRIBUTION STATEMENT (of the abstract included here, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) RPV		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) A review of Field Manual FM 100-5 Operations, 1 July 1976, has been made to determine those basic concepts of Army Operational capabilities outlined in the coordinated US Army Intelligence Center and School (USAICS) preliminary RPV Operational and Organizational (O&O) Concepts, June 1976.		

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I. INTRODUCTION

FM 100-5, Operations, sets forth the basic concepts of US Army doctrine that will guide the training and combat developments throughout the Army. The manual presents the principles for accomplishing the primary mission of the Army - Winning the Land Battle.

"The first step in winning is seeing the battlefield."

The theme of seeing the battlefield as an integral part of combat operations is stressed in the manual. A future conventional-nuclear war with its dynamic battlefield environment of increased mobility, weapons lethality, electronic warfare and in all probability with an enemy that outnumbers our forces requires intelligence which provides for the application of optimum combat power to the battle situation.

II. COMMAND REQUIREMENT FOR INTELLIGENCE ON THE NUCLEAR BATTLEFIELD

The commander requires intelligence if he is to command and control his forces and if he is to concentrate combat power at critical places at critical times. Based on his intelligence operations, the commander must:

- Decide exactly when and where to concentrate his forces.
- Ascertain the location of the enemy's main offensive breakthrough effort.
- Know as much as possible about the number, type, location and strength of enemy units opposing him when planning an attack.

Intelligence requirements are not new to military operations. However, in the dynamic modern battlefield, generation of timely event-oriented

intelligence has become critical. The Intelligence Summary (INTSUM), periodic intelligence reports (PERINTREP) and scheduled intelligence briefings can no longer serve the modern commander in a rapidly changing situation.

Each level of command's interest in "seeing" the battlefield to obtain combat information and intelligence needed to fight the battle is illustrated in Appendix A - Tactical Intelligence Zones chart, taken from FM 100-5.

It can be seen that each level of command has different intelligence needs and interests and, as will be demonstrated later, has different intelligence resources available to it.

The commander must develop the intelligence assets available to him into a coordinated system of intelligence gathering operations. Utilization of all sources of intelligence available to the commander is his own responsibility. Intelligence assets available to the commander can be categorized as follows:

- Electromagnetic intelligence - Signal intelligence (SIGINT), Ground surveillance radar (GSR) and remote sensors (REMS).
- Imaging intelligence - TV radar, infrared and photographic sensors carried by overhead platforms.
- Human intelligence - observation, long range patrols, prisoners, listening and observation posts, etc.

The USAF has additional capabilities primarily in the categories of tactical imaging and electromagnetic detection.

FM 100-5 emphasizes the need for intelligence and the commander's responsibility to fulfill his intelligence requirements. The various intelligence assets and organizations which work to satisfy the intelligence requirements of the commander are illustrated in Appendix B - Intelligence Asset Availability chart taken from FM 100-5.

III. THE RPV's IMPACT ON MODERN BATTLEFIELD INTELLIGENCE CAPABILITIES

How does the Remotely Piloted Vehicle (RPV) relate to the need for intelligence on the modern battlefield emphasized in FM 100-5? The (RPV) system capabilities and sensor equipment as described in the US Army Intelligence Center and School (USAICS) preliminary operation and organization (O&O) concept provides some answers to the question.

- RPV capabilities will provide real time and near real time data.
Real time data is obtained from the TV sensor downlinked to a video display located in the Ground Control Station (GCS). Near real time data can be obtained from instant replay analysis of video tapes while the mission is in progress or reviewed after the completion of the mission. Film from the panoramic camera will be recovered by the RPV section and forwarded for processing and exploration.
- RPV sensor equipment includes:
 1. Stabilized TV with video downlink to provide real time imaging to the GCS display(s) and recorder(s).
 2. Panoramic camera.
 3. Laser designator/rangefinder.
 4. Adverse weather/night sensors with downlink to provide real time imaging to the GCS display(s) and recorder(s).

- Ground Control Station (GCS) consists of the necessary equipment to control launch, flight and recovery of the RPV and sensor.
- The RPV flight range is 50 KM forward of the FEBA with maximum flight endurance of 3 hours/sortie.

The RPV is capable of performing unmanned day/night, adverse weather reconnaissance, limited surveillance, and target acquisition (RSTA) missions in support of a US Army division.

- The RPV is also capable of providing the commander with the expanded capability to engage selected targets rapidly and accurately with indirect fire weapons. (Artillery adjustment conducted through the GCS.)
- A sophisticated RPV technique of laser designation of high priority targets identified during target acquisition permits subsequent engagement of the target to include use of Precision Guided Munitions (FGM).
- The RPV also provides a new capability for damage assessment.

There can be little doubt that the capabilities of the RPV will fulfill important intelligence gathering needs for the modern battlefield.

An obvious void in the intelligence assets available to the commander (Appendix B) is the lack of imaging capability directly available at the Brigade Battalion and Company level. The operational concept of the RPV Platoon which is organic to the proposed Combat Electronic Warfare Intelligence Bar (CEWI) Division, fills this void through attachment of one RPV section from the platoon to each of the three division brigades

on a habitual basis. This will provide the Brigade commander with an overhead intelligence gathering platform under his direct control which he can use to satisfy his needs and the needs of the battalion and company commanders subordinate to him for real time and near real time combat information and intelligence.

IV. OTHER OPERATIONAL CONSIDERATIONS AND THE RPV

The air-land battle--The importance of air power in winning the land battle is considered in FM 100-5. Cooperation between both the Army and Air Force is stressed because air power is essential to winning the land battle. Air power provides firepower, can collect intelligence, conducts reconnaissance, provides air superiority over the battlefield and can perform logistic missions such as troop movement and resupply. There can be no doubt about the necessity for these functions in winning the land battle.

- To successfully engage in the air-land battle it is essential to suppress enemy air defenses. This is required in order to keep air support effectiveness high and aircraft losses low. The suppression of enemy air defenses requires a coordinated Air Force/Army effort to locate enemy anti-aircraft weapons, communication links and control centers. Part of this effort is mounting a campaign to generate intelligence for suppression.
- To develop this intelligence the Army and Air Force must employ all collection and location systems available. When considering the RPV's reconnaissance capability to generate real time and near real time intelligence up to 50 KM in front of the FEBA, there can be little doubt of its usefulness for enemy air defense suppression. The RPV

is a mode for obtaining suppression intelligence specifically mentioned in FM 100-5.

- The RPV technique of laser designation of high priority targets and engagement of the target with PGM fits into the attack phase of suppression operations against enemy air defenses.

Electronic Warfare - The modern battlefield now includes a silent form of combat known as Electronic Warfare (EW). The commander must now be capable of understanding and evaluating the enemy's use of electronic systems and of making decisions concerning whether to jam or destroy them or to exploit these systems for intelligence purposes. Although the O&O concepts for the RPV do not include EW capabilities, the potential for providing this capability is evident. An EW jamming capability would also be useful in suppression operations against enemy air defenses.

North Atlantic Treaty Organization (NATO) - Operations in NATO territory is specifically addressed in FM 100-5. There can be little doubt about the importance attached to the US commitments made under the North Atlantic Treaty. Operations must be considered a certainty if a conflict develops between any NATO and Warsaw Pact Nations. Cognizance should be taken of the climatic and topographic environment of the central NATO area where US forces will fight and its relevancy to the operational concepts of the RPV.

- Generally, the climate must be considered poor with generally cold, wet conditions and frequent fogs. The topography of the area

generally has many hills, streams, small forests, vegetation, and villages. All of these terrain features contribute to the difficulty of finding long-range fields of fire for tanks and anti-tank guided missiles. Obviously, the weather and terrain conditions will hamper observation of enemy operations in the area.

- As described before, the day/night adverse weather reconnaissance and the target acquisition-designation capabilities of the RPV are certainly essential assets for conducting operations in the central NATO area battlefield. Probably the most significant capability under these circumstances is day/night adverse weather reconnaissance.

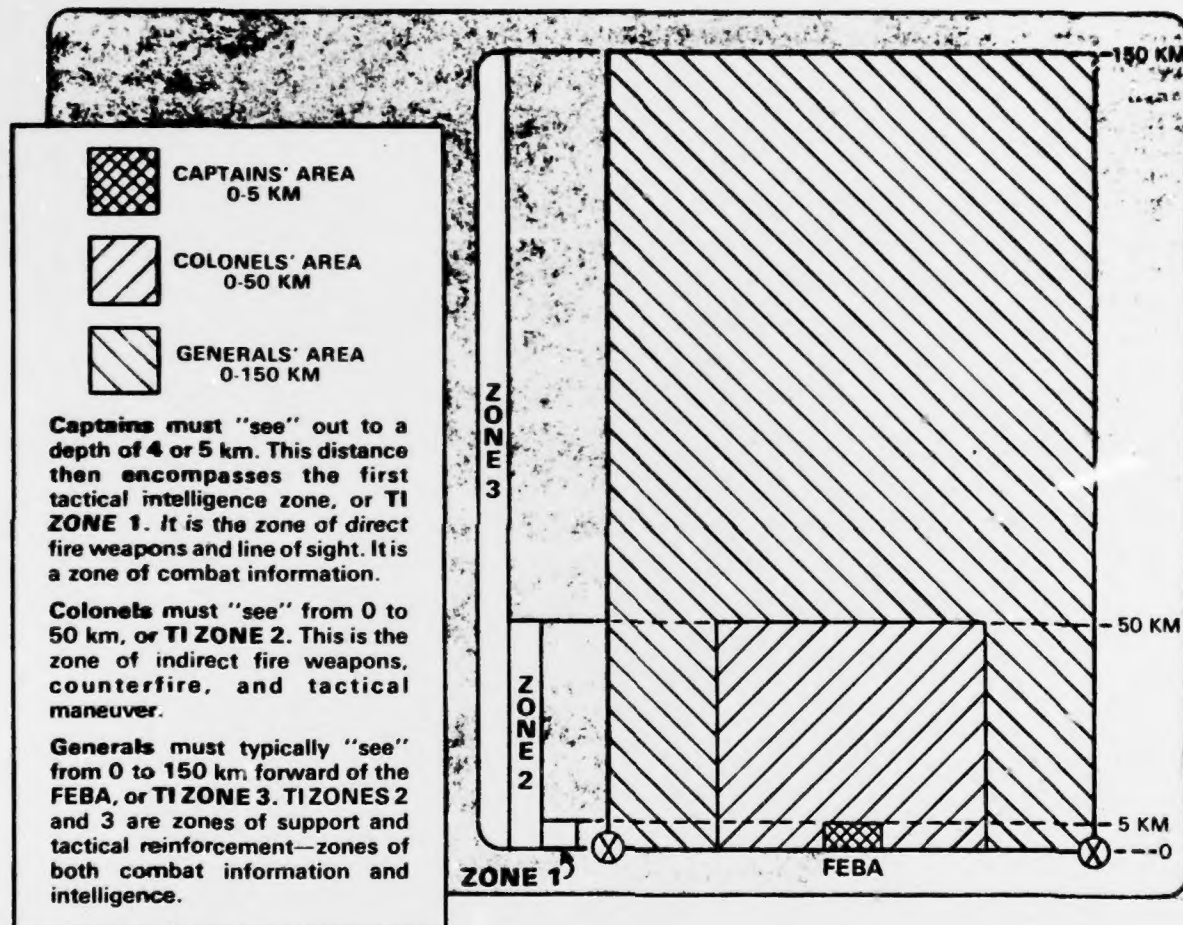
V. CONCLUSIONS

There is little doubt that the RPV as a new weapons system will fit into the environment of the future battlefield and will contribute to the commander's capability to win the land battle. The target acquisition-designation and artillery adjustment capabilities of the RPV would provide additional means to apply combat power to battle, and the day/night adverse weather reconnaissance capability conceived for the RPV certainly brings the literal meaning of "seeing" the battlefield in real time perspective close to reality for the commander.

However, the operations doctrine set forth in FM 100-5 places great emphasis on "seeing" the battlefield and the critical need for timely event-oriented intelligence to successfully concentrate combat power at the right place and time--thus winning the battle. With this overview of operations from FM 100-5 in mind, it would seem that the most essential capability that the RPV can bring to the commander on the future battlefield is day/night adverse weather reconnaissance.

APPENDIX A

TACTICAL INTELLIGENCE ZONES



APPENDIX A

APPENDIX B

The following chart depicts the various intelligence assets and organizations which work to satisfy the operational requirements of the Generals, Colonels, and Captains.

INTELLIGENCE ASSET AVAILABILITY					
	GENERALS		COLONELS		CAPTAINS
	CORPS	DIVISION	BRIGADE	BATTALION	COMPANIES
NATIONAL STRATEGIC SYSTEM	★				
USAF/USN SYSTEMS	★	★			
TACTICAL SYSTEM					
■ ELECTROMAGNETIC SIGINT					
■ COMINT	★	★	★		
■ ELINT	★	★	★		
REMS		★	★	★	★
GSR		★	★	★	★
WEAPONS LOCATING RADAR		★	★		
■ IMAGERY					
PHOTO	★	★			
IR	★	★			
SLAR	★	★			
■ HUMAN OBSERVATION					
RECONNAISSANCE UNITS	★	★		★	
TROOPS				★	★
IPW	★	★	★		

*This chart illustrates the echelons at which these assets are normally assigned, attached, or in direct support.

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